BRAKE AND CLUTCH REPAIR

HAZARDS & RULES

Base Materials - Hazards & Impacts

The base material historically found in brake and clutch pads contains asbestos. Asbestos was once a widely used material due to its resistance to heat and corrosive chemicals. Asbestos is not a health threat when its small, fibrous materials are contained within a product (such as new brake linings, roofing shingles, etc.) Airborne fibers (friable asbestos), however, can become permanently lodged in the lung, potentially causing shortness of breath, lung disease or cancer. The symptoms of these diseases generally do not appear for 20 or more years after initial exposure. Note that smokers who are exposed to asbestos, even while they are not smoking, are at a much greater risk of getting lung cancer than are nonsmokers.

Additives and Contaminants - Hazards & Impacts

There are no significant additives or contaminants associated with used brake and clutch pads. However, normal wear on asbestos-containing brake and clutch pads causes the pads to release a friable dust, and may also cause the pads themselves to be friable. The term >friable′ means a material that contains more than one percent (1%) asbestos that, when dry, can be crumbled or reduced to powder by hand pressure.

Brake cleaners and other products that you use when performing brake and clutch work may cause your used brake pads, clutch pads, and/or wipes to become a hazardous waste. You must make a hazardous waste determination on your used brake pads, clutch pads, and wipes. If any of these items are deemed to be a hazardous waste, you must manage them under the more stringent hazardous waste regulations (vs. special waste regulations.)

Regulatory Overview

OSHA requires that proper engineering controls and work practices be used during brake and clutch work to reduce employees′ exposure to asbestos. OSHA also has specific storage requirements for used cloths, vacuum bags, and disposable paper filters generated during brake and clutch work. Because it is generally impossible to determine which used brake and clutch pads contain asbestos, shops must follow these OSHA requirements at all times.

Unlike OSHA, IDEM does not automatically require you to manage all the dust and debris from brake and clutch work as though it contains asbestos. You may use generator knowledge of the waste to determine whether or not it contains asbestos, or you may test the waste to determine its asbestos content and then manage it accordingly.

As explained in Section 2.7, asbestos-containing waste is regulated by IDEM as either a solid waste, special waste or hazardous waste. Asbestos-containing brake and clutch pads that are in good condition (nonfriable) are considered to be a solid waste and can be disposed with your regular trash. Friable asbestos is regulated as a special waste. Brake and/or clutch pads (either

friable or nonfriable) that are contaminated with a listed waste or that exhibit a hazardous waste characteristic must be managed as a hazardous waste.

Each shop is responsible for the proper management of asbestos-containing materials. Depending upon how comfortable you are in relying on generator knowledge of whether or not the material contains asbestos, you may simply wish to manage all of the dust and other friable debris from brake and clutch work as asbestos-containing material.

MANAGEMENT RESPONSIBILITIES

Listed below are the management responsibilities that you must follow when performing brake or clutch work or when storing or disposing of a special waste. Also listed are suggested practices that you should follow in order to ease your regulatory requirements and improve the environmental health of your shop.

You Must:

Postings [OSHA]:

- if your shop performs brake and/or clutch work and there is a reasonable possibility that the asbestos concentration may exceed OSHA's permissible exposure limits, you must:
  - post warning signs. These signs must be posted in the brake and/or clutch work area and at all approaches to these work areas and must contain the following information:

DANGER ASBESTOS CANCER AND LUNG DISEASE HAZARD AUTHORIZED PERSONNEL ONLY

  - ensure that all employees working in the brake and/or clutch area and contiguous areas comprehend the warning signs. You may use foreign languages, pictures or graphics as a means to ensure that employees comprehend the warning signs.

    Note that proper use of the engineering controls and work practices that OSHA requires for brake and clutch work will reduce employees' asbestos exposure below the permissible exposure level. OSHA's brake and clutch work requirements are listed below. Contact BuSET or CTAP for more information on permissible exposure levels, and additional regulations that your shop must follow if you exceed these levels.

You Must:

Performing Brake & Clutch Work [OSHA]:

- when performing brake or clutch work (including inspection, disassembly or repair), you must use one of the following four work practices and engineering control methods:

1) if you use the **Negative Pressure Enclosure/HEPA Vacuum System**, you must:
   - enclose the clutch or brake assembly to prevent the release of asbestos in the employee's breathing zone.
   - thoroughly inspect the enclosure for leaks before brake or clutch work begins.
   - ensure that the enclosure allows the employee to clearly see the work area and has impermeable sleeves to allow the employee to perform brake or clutch work. The integrity of the sleeves and ports must be examined before work begins.
   - use a HEPA-filtered vacuum to maintain the enclosure under negative pressure while the work and clean-up are being done. Compressed air may be used to remove asbestos fibers or particulates from the enclosure.
   - use the HEPA vacuum to loosen the asbestos containing residue from the brake and clutch parts and then to remove the loosened asbestos containing material from the enclosure.
   - when the vacuum's filter is full, wet the filter with a fine mist of water, then remove the filter and immediately place it in an impermeable container that is labeled with the information provided on page 63.
   - immediately clean up and dispose of any spills or releases of asbestos containing waste material from inside the enclosure, the vacuum hose or vacuum filter using a HEPA vacuum.

2) if you use the **Low Pressure/Wet Cleaning Method**, you must:
   - place a catch basin (usually filtered) under the brake or clutch assembly and position to avoid spills and splashes.
   - ensure that the reservoir contains water with an organic solvent or wetting agent. Gently flood the brake assembly to prevent the asbestos-containing dust from becoming airborne.
   - allow the water solution to flow between the brake drum and brake support before the drum is removed.
   - after the brake drum is removed, use the water solution to thoroughly wet the wheel hub and back of the brake assembly.
   - thoroughly wash the brake support plate, brake shoes and brake components used to attach the brake shoes before removing the old shoes.
   - if your system uses a filter, when the filter is full, you must wet it with a fine mist of water. Remove the filter and immediately place it in an impermeable container that is labeled with the information provided on page 63.
   - properly dispose of the filter when it is full.

- immediately clean up and dispose of any spills or releases of asbestos containing waste material from inside the enclosure, the vacuum hose or vacuum filter using a HEPA vacuum.
- not use compressed air or a dry brush to remove dirt and debris from brake or clutch assemblies.

2) if you are using **a proven equivalent method** to one of the above listed control methods, you must:
   - provide sufficient written detail so that the method can be reproduced.
   - provide information demonstrating that the exposures resulting from the equivalent method are equal to or less than the exposures resulting from the use of the Negative Pressure Enclosure/HEPA Vacuum System Method.
   - not use compressed air or a dry brush to remove dirt and debris from brake or clutch assemblies.

3) if you are using the **Wet Method**, you must:
   - use a spray bottle, hose nozzle or other method of delivering water in a fine mist or at a low pressure. Thoroughly wet the brake and clutch parts, and then wipe them clean with a cloth.
   - place the cloth in an impermeable container, and properly label the container.
   - have the clothes laundered in a manner that prevents the release of asbestos fibers into the air or properly dispose of the cloths.
   - immediately clean up any spills of solvent or any asbestos containing material as soon as possible, using a HEPA vacuum.
   - not use compressed air or dry brushing during the wet method operation.

You Must:

Housekeeping [OSHA]:

- not use compressed air when cleaning asbestos-containing material, waste and/or dust.
- keep all surfaces as free as practicable of asbestos-containing material, waste and dust. Clean up spills and sudden releases of asbestos-containing material as soon as possible, using the HEPA-filtered vacuuming equipment for vacuuming asbestos containing waste and debris.
- empty the HEPA-filtered vacuum in a manner that minimizes the reentry of asbestos into your shop.
- if you launder your shop towels, you must launder them in a manner that does not release asbestos fibers into the air.
- if you send your contaminated shop towel to a laundry, you must inform them that the towels are contaminated with asbestos. This will allow the laundry to manage the towels accordingly.

You Must:

Storage [OSHA & IDEM]:

- immediately place wetted filters, or cloths used in the Spray Can/Solvent Method or Wet Method, in a heavy gauge plastic bag (or a similar impermeable container) and seal the bag to prevent fibers from drying out and becoming friable. [OSHA]
  - place the bags in an air-tight container.
  - label the container with the following Danger label (note that the information may be handwritten on your container, or you may purchase pre-labeled bags designed for asbestos waste):

DANGER CONTAINS ASBESTOS FIBERS AVOID CREATING DUST CANCER AND LUNG DISEASE HAZARD

  - store the container in an area that restricts access by unauthorized persons, such as a locked container, room, truck or trailer.

You Must:

Disposal [IDEM]:

- make a waste determination (either solid, special or hazardous waste) and manage accordingly. You may dispose of the waste as a solid waste if you have made a waste determination and found that the waste is not a special waste or a hazardous waste.
  - dispose of the waste as a special waste if:
    - the material contains friable asbestos (i.e., any material that contains more than one percent asbestos that, when dry, can be crumbled or reduced to powder by hand pressure); and
    - the asbestos-containing material is not determined to be a hazardous waste. If the material is considered to be a hazardous waste, it must be managed under the hazardous waste rules (see Chapter 3.)
- prior to shipping the asbestos-containing material as a special waste, you must label the container with the following information:
  - your shop's name, address and telephone number
  - if the quantity is less than one pound, use the DOT marking: "Asbestos, 9, NA2212, Class 9, PGIII"
  - if the quantity is one pound or more, use the DOT marking, "R.Q., Asbestos, 9, NA2212, Class 9, PGIII"
- have your asbestos-containing waste sent to a landfill that is approved by IDEM to accept special waste. You may obtain a list of Special Waste Disposal Facilities from IDEM's web site or the Fax-On-Demand system.
- provide the receiving landfill with sufficient notice prior to sending your special waste to

them (24 hours is usually sufficient.)

- ensure that an Asbestos Waste Shipment/Disposal Record accompanies each load of asbestos-containing waste that is sent for disposal. You may obtain a copy of the Asbestos Waste Shipment/Disposal Record form via IDEM's web site or the Fax-On-Demand system.
- if you do not receive a completed copy of the Asbestos Waste Shipment/Disposal Record from the waste disposal facility within 35 days of acceptance of the waste by the transporter, you must contact the transporter and/or the waste disposal facility to determine the status of the asbestos-containing waste that was sent for disposal. If the transporter and/or the waste disposal facility does not respond to your inquiry within 10 days, you must file a written exception report with the Office of Air Management's Asbestos Section. This report must include a copy of the shipment/disposal record, a letter explaining the actions taken to locate the shipment, and the results of these actions.

You Should:

- perform brake and clutch work in an area that is away from other work areas. Post signs informing employees not to eat, drink or smoke in the brake and clutch work area.
- launder employee work clothes at an industrial laundry equipped to wash asbestos-contaminated clothing.
- use pre-ground, ready-to-install parts when possible.
- ensure that all machinery used on asbestos-containing products have a HEPA-equipped exhaust dust collection system to prevent asbestos exposure and shop contamination.
- never grind brake linings. Instead, lathe-turning should be done slowly.
- when preparing to store and/or dispose of asbestos-containing waste, you should:
  - if you plan to have your brake and clutch waste tested to determine its asbestos content, you should store it according to the special waste rules prior to testing. This will ensure that you are in compliance with the rules in the event the test results indicate the waste is a special waste.
  - thoroughly clean all asbestos contaminated parts and send your used drums and housings back to the wholesaler or manufacturer to be reworked. If this is not a viable option, send the drums and housings with your other scrap metal to be recycled.
- send asbestos contaminated shop towels to a commercial industrial laundry for cleaning and reuse rather than disposing of them as special waste. Note that you must inform the laundry that the towels are contaminated with asbestos.

DANGER

ASBESTOS

CANCER AND LUNG DISEASE HAZARD

AUTHORIZED PERSONNEL ONLY

DANGER

CONTAINS ASBESTOS FIBERS

AVOID CREATING DUST

CANCER AND LUNG DISEASE HAZARD